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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/058,495	01/28/2002	Richard King	265280-68002	2189
23643 7590 01/04/2007 BARNES & THORNBURG LLP 11 SOUTH MERIDIAN INDIANAPOLIS, IN 46204			EXAMINER RAMANA, ANURADHA	
			ART UNIT 3733	PAPER NUMBER

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	01/04/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary	Application No. 10/058,495	Applicant(s) KING ET AL.	
	Examiner Anu Ramana	Art Unit 3733	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 49, 50, 52-55 and 125-132 is/are pending in the application.
- 4a) Of the above claim(s) 53, 54, 130 and 131 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 49, 50, 52, 55, 125-129 and 132 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 1/28/2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Election/Restrictions

New claims 131 and 132 are withdrawn from further consideration since they are directed to non-elected species.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 49, 50, 52, 55, 125-129 and 132 are rejected under 35 U.S.C. 103(a) as being unpatentable over Devanathan et al. (US 5,645,594) in view of McKellop et al. (US 6,165,220).

Devanathan et al. disclose an acetabular cup or "implantable orthopedic prosthesis" or "laminar composite bearing" having multiple layers formed by compression molding under pressure and temperature wherein during molding the polymer (PMMA) melts and forms an inter-penetrating polymer network or "melt-fused" interface (Fig. 2 and col. 2, lines 10-65).

Devanathan et al. disclose all elements of the claimed invention except for an irradiated crosslinked polymer layer.

McKellop et al. teach irradiating the bearing surface of a UHMWPE cup using e-beam irradiation to produce gradient cross-linking on its bearing or articulating surface for wear resistance (col. 7, lines 25-67, col. 8, lines 1-29 and col. 9, lines 19-31).

Accordingly it would have been obvious to one of ordinary skill in the art at the time the invention was made to have irradiated the articulating surface of the Devanathan et al. bearing with e-beam irradiation, as taught by McKellop et al., to produce gradient cross-linking on its articulating surface for wear resistance.

Response to Arguments

Applicant's arguments submitted under "REMARKS" in the response filed on October 17, 2006 have been fully considered but are not persuasive for the following reasons.

Devanathan et al. teach a polymer composite implant formed by compression molding of a first layer of PMMA particles and a second layer of blended PMMA and UHMWPE particles (col. 2, lines 49-59).

McKellop et al. teaches that it is desirable to crosslink the bearing surface, e.g., the inner concave surface of an acetabular cup, which articulates against an opposing femoral ball. McKellop et al. further teach the desirability of crosslinking any surface, which is susceptible to wear due to moving contact with another surface (e.g., in a sliding, pivoting, or rotating relationship to one another (col. 5, lines 5-16). It is the Examiner's position that McKellop et al. provide a strong motivation for crosslinking the bearing surface, i.e., the concave inner surface, of Devanathan et al.

On page 7, Applicant argues that it is well known and in fact acknowledged in McKellop at column 4, lines 30-41, that crosslinking polyethylene to increase its wear resistance necessitates the tradeoff of other physical properties. On page 8, Applicant states that "***one skilled in the art would not be motivated to e-beam irradiate Devanathan's bearing since doing so would actually REDUCE the stiffness of the bearing and LOWER its creep resistance.***"

It is noted that McKellop offers the solution of surface-gradient crosslinking of polyethylene to produce wear resistant implants while maintaining the good physical properties in the bulk of the implant (col. 4, lines 56-61). Thus, it is the Examiner's position that a motivation to crosslink the surface of the Devanathan implant exists and would not destroy the intent of the invention of Devanathan.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Anu Ramana whose telephone number is (571) 272-

Art Unit: 3733

4718. The examiner can normally be reached Monday through Friday between 8:00 am to 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eduardo Robert can be reached at (571) 272-4719. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AR
December 26, 2006

A handwritten signature in black ink, appearing to read "Anuradha Ramana". The signature is fluid and cursive, with the first name being more prominent.